



The future of industrial manufacturing

The Problem

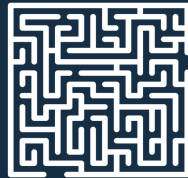
Currently available process control systems are not flexible and problem resilient which requires human intervention when problems arise or new materials, machine or products are introduced.

Processing and R&D are often seen as separate processes, however, this leads to situations in which R&D has to be done twice.

R&D processes are inefficient and human labour intensive which makes them time and cost intensive. Traditional R&D tools, like design of experiments software, require the help of statisticians. Highly qualified statisticians are a very rare find on the labour market. This results in R&D bottlenecks.



Industrial Processing:



Highly Complex



Time Intensive

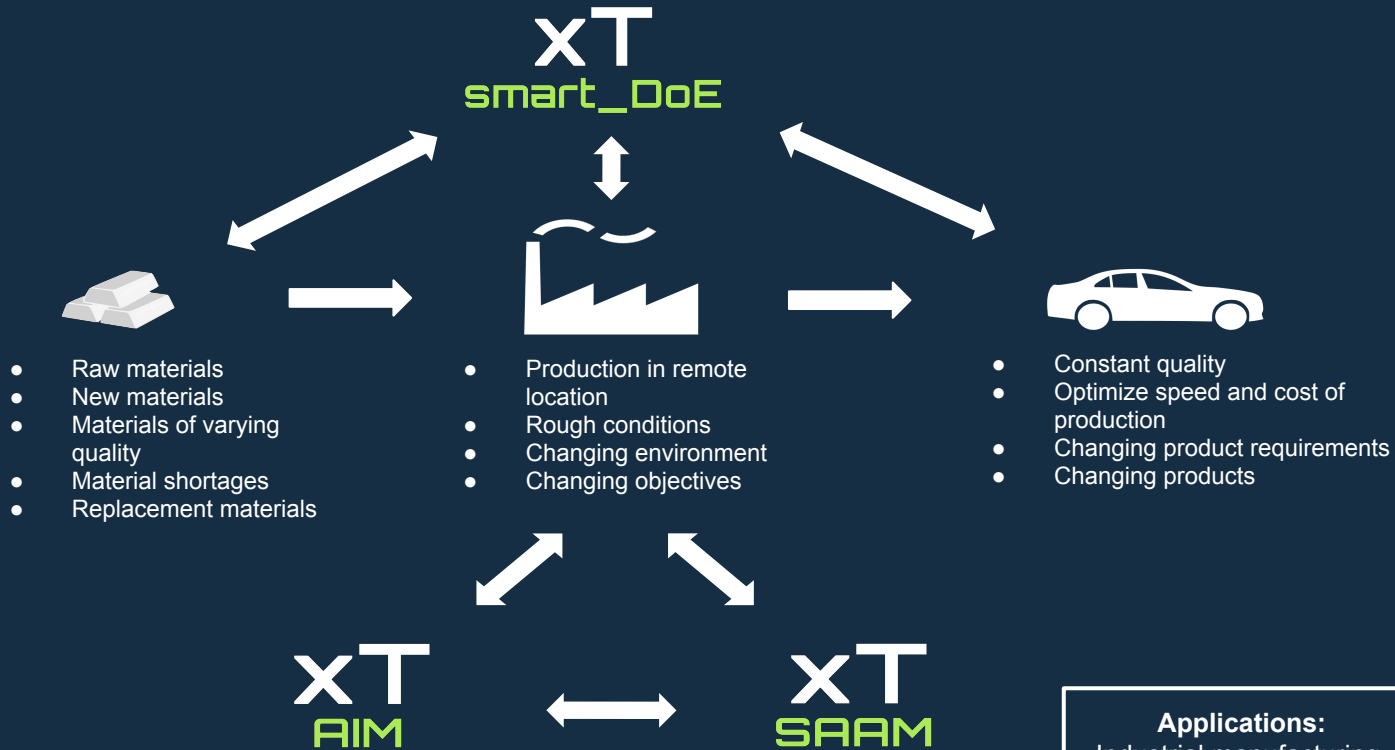


Expensive

Intelligent Control Software

Benefits:

- Holistic approach to process control and optimization
- Less human interaction required
- Process control in rough and remote environments (e.g, deserts, sea, space,...)
- Continuous improvements of process and product
- Inbuilt R&D system
- High flexibility



Applications:

Industrial manufacturing,
(space) mining, gas & oil,
defense, space, finance,
autonomous mobility.....

Technology Timeline

xT
smart_DoE



xT
AIM



xT
SAAM

Software for R&D automation (Existing solution)

- Develop materials
- Develop production parameters
- Little to no human interaction
- No statistical expertise needed
- Drastically reduced R&D time and cost

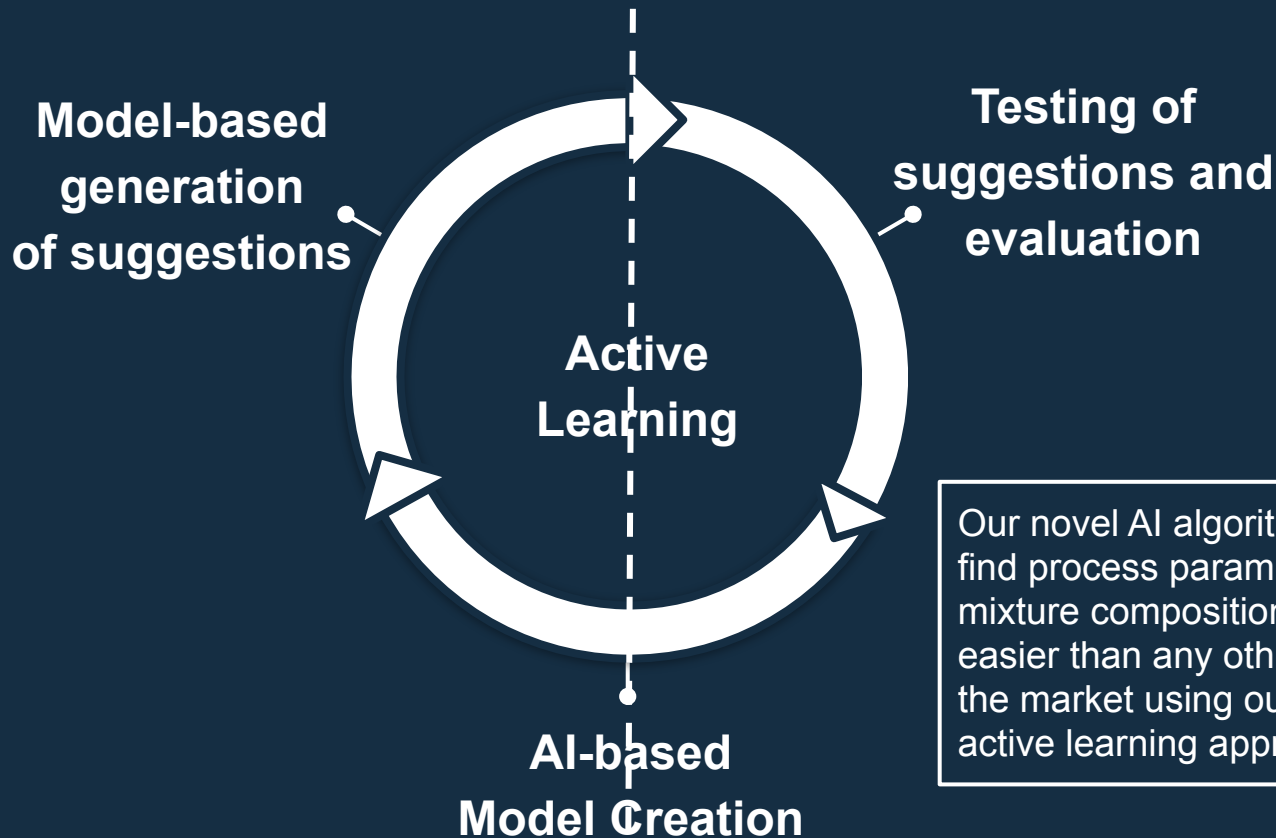
Autonomous Intelligent Management (based on xT smart_DoE, available 2022)

- Management of production
- Continuous optimization
- Risk prediction
- Risk mitigation
- Mostly autonomous production
- Lower production cost
- Increased quality and flexibility

System for Autonomous Anomaly Management (based on xT AIM, available 2024)

- Real-time anomaly mitigation
- Development of anomaly mitigation strategies
- Training of xT AIM
- Allows fully autonomous production

Our Technology



Our novel AI algorithm helps to find process parameters and mixture compositions faster and easier than any other product on the market using our unique active learning approach.

Cyber

Reality

Current Focus Markets



Biotechnology

Developing growth parameters for bioreactors e.g. for the production of vaccine, drug development



Additive Manufacturing
Developing printer settings and new specialized materials



Chemical Industry
Developing new chemical compositions and production parameters

Market size (TAM) per annum

Currently:

Product: xT smart_DoE

Application: R&D

~**500 MEUR** based on bottom up and top down based on revenue of existing companies

Future (2024):

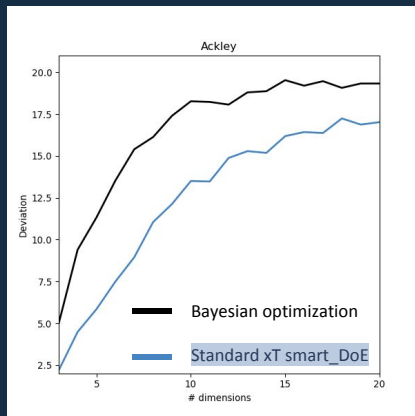
Product: Intelligent control software

Application: Manufacturing, R&D, autonomous decision making

Markets: all industrial sectors, finance, space, defence,
autonomous mobility, telecommunications, ...

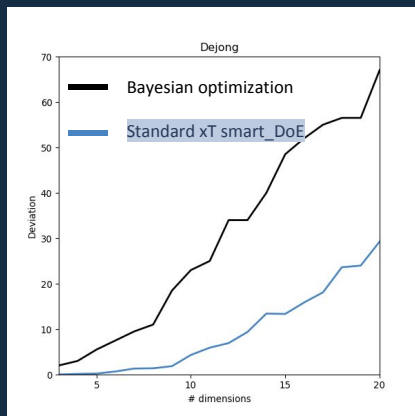
> **7 BEUR** (<https://www.kbvresearch.com/advanced-process-control-market/>)

Benchmarking



Synthetic tests show:

1. Given the same amount of resources our solution will give better optimized results compared to state of the art AI algorithms on the market
2. That also means our solution will require substantially less produced samples to receive well optimized results compared to any other solution on the market
3. Computation time to receive new suggestions is by orders of magnitudes smaller compared to other AI based optimization algorithms (usual: tenth of minutes to hours, xT smart_DoE: less than a second)



Examples



Development of SLA resin

Input: 3 mixture components
2 printer parameters

Only 25 samples produced

Results: New resin recipe with printer settings for specific end-part properties

Conclusion by Evonik: xT smart_DoE is user friendlier, more flexible and more efficient than standard DoE



Scaling of vaccine production

Input: 6 growth factors

Only 18 samples produced

Results: Almost doubling of the spike protein yield.

Conclusion by LU: First tests were successful and approach is justified.

Current Business Model

xT
smart_DoE

Cloud service with subscription fee

xT
edge

On-premise Edge Computing Solution
for xT **smart_DoE**

Competition

Classical DoE



Minitab

Jmp

Statistical Discovery.™ From SAS.



Flexibility

XT
smart_DoE



KEBOTIX



SIGOPT



CITRINE
INFORMATICS

Usability



CHEMOS

Accelerate innovation



SENVOL

- Additive manufacturing
- Chemistry
- Biotech
- Other



CTO

Pavel Cacivkin

Inventor of the algorithm with a background in mechanical and software engineering



CEO

Matthias Kaiser

Physicist with 8+ years experience in deep tech sales and business development



CFO

Girts Smelters

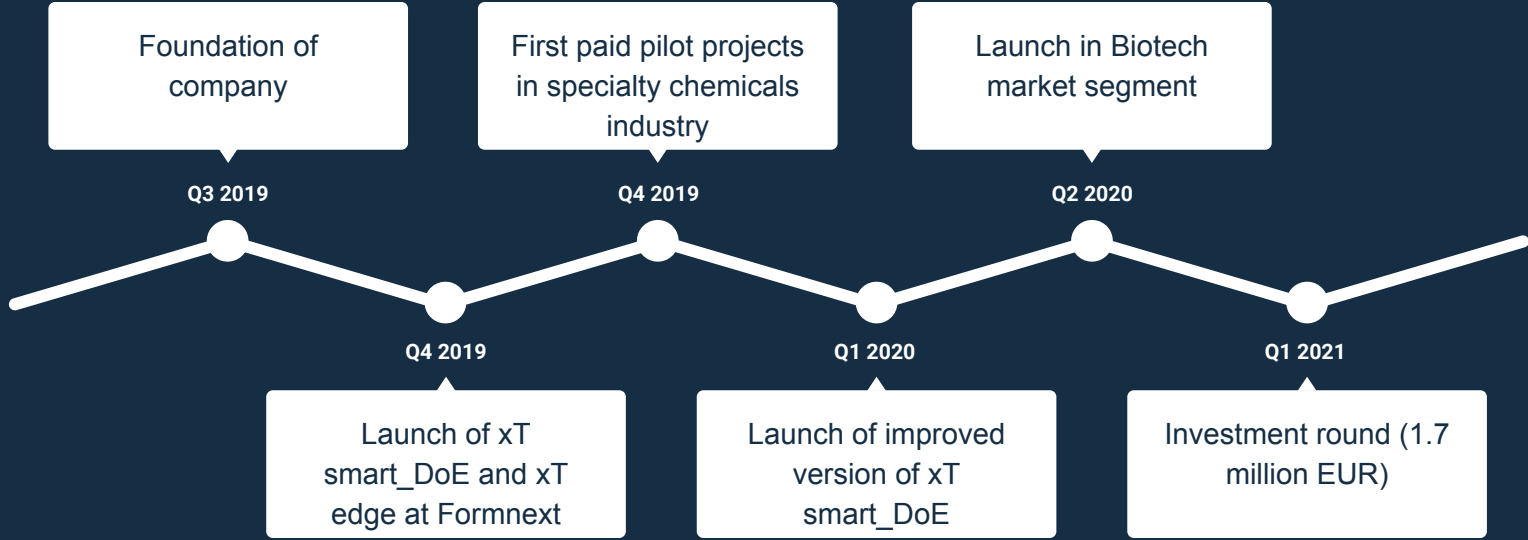
Managed the ICT deep tech investment portfolio of the Latvian Investment and Development Agency



Mentor

Eyal Kazin, PhD

Data Scientist with 8+ years of experience. Former positions as data scientist at Cambridge Analytica and LabGenius.



Our Partners



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